FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

Analysis For Total Metals By EPA Method 200.8

Client ID:	M-05604 "AA"	Client:	Alaskan Copper Works
Date Received:	06/09/10	Project:	Down Spout Test, F&BI 006109
Date Extracted:	06/14/10	Lab ID:	006109-01
Date Analyzed:	06/15/10	Data File:	006109-01.085
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	86	60	125

Analyte:	Concentration ug/L (ppb)
Copper	5.15
Zinc	1,010

Analysis For Total Metals By EPA Method 200.8

Client ID:	M-05604 "BB"	Client:	Alaskan Copper Works
Date Received:	06/09/10	Project:	Down Spout Test, F&BI 006109
Date Extracted:	06/14/10	Lab ID:	006109-02
Date Analyzed:	06/15/10	Data File:	006109-02.054
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	95	60	125

Analyte:	Concentration ug/L (ppb)
Copper	7.24
Zinc	2,770

Analysis For Total Metals By EPA Method 200.8

Client ID:	M-05604 "C"	Client:	Alaskan Copper Works
Date Received:	06/09/10	Project:	Down Spout Test, F&BI 006109
Date Extracted:	06/14/10	Lab ID:	006109-03
Date Analyzed:	06/15/10	Data File:	006109-03.055
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	93	60	125

Analyte:	Concentration ug/L (ppb)
Copper	26.8
Zinc	574

Analysis For Total Metals By EPA Method 200.8

Client ID:	M-05604 "CC"	Client:	Alaskan Copper Works
Date Received:	06/09/10	Project:	Down Spout Test, F&BI 006109
Date Extracted:	06/14/10	Lab ID:	006109-04
Date Analyzed:	06/15/10	Data File:	006109-04.056
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	95	60	125

Analyte:	Concentration ug/L (ppb)
Copper	23.2
Zinc	42.8

Analysis For Total Metals By EPA Method 200.8

Client ID:	M-05604 "D"	Client:	Alaskan Copper Works
Date Received:	06/09/10	Project:	Down Spout Test, F&BI 006109
Date Extracted:	06/14/10	Lab ID:	006109-05
Date Analyzed:	06/15/10	Data File:	006109-05.057
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	93	60	125

Analyte:	Concentration ug/L (ppb)
Copper	21.1
Zinc	182

Analysis For Total Metals By EPA Method 200.8

Client ID:	M-05604 "DD"	Client:	Alaskan Copper Works
Date Received:	06/09/10	Project:	Down Spout Test, F&BI 006109
Date Extracted:	06/14/10	Lab ID:	006109-06
Date Analyzed:	06/15/10	Data File:	006109-06.058
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	90	60	125

Analyte:	Concentration ug/L (ppb)
Copper	11.9
Zinc	132

Analysis For Total Metals By EPA Method 200.8

Client ID:	Method Blank	Client:	Alaskan Copper Works
Date Received:	Not Applicable	Project:	Down Spout Test, F&BI 006109
Date Extracted:	06/14/10	Lab ID:	I0-296 mb
Date Analyzed:	06/15/10	Data File:	I0-296 mb.050
Matrix:	Water	Instrument:	ICPMS1
Units:	ug/L (ppb)	Operator:	btb

Internal Standard:	% Recovery:	Lower Limit:	Upper Limit:
Germanium	94	60	125

Analyte:	Concentration ug/L (ppb)
Copper	<1
Zinc	<2

Date of Report: 06/22/10
Date Received: 06/09/10
Project: Down Spout Test, PO M05604, F&BI 006109

QUALITY ASSURANCE RESULTS FOR THE ANALYSIS OF WATER SAMPLES FOR TOTAL METALS USING EPA METHOD 200.8

Laboratory Code: 006128-16 (Matrix Spike)

Analyte	Reporting Units	Spike Level	Sample Result	Percent Recovery MS	Percent Recovery MSD	Acceptance Criteria	RPD (Limit 20)
Copper	ug/L (ppb)	20	5.85	90 b	93 b	50-144	3
Zinc	ug/L (ppb)	50	4.93	92	91	46-148	1

Laboratory Code: Laboratory Control Sample

Analyte	Reporting Units	Spike Level	Percent Recovery LCS	Acceptance Criteria
Copper	ug/L (ppb)	20	96	66-134
Zinc	ug/L (ppb)	50	101	57-135

Data Qualifiers & Definitions

a - The analyte was detected at a level less than five times the reporting limit. The RPD results may not provide reliable information on the variability of the analysis.

A1 – More than one compound of similar molecule structure was identified with equal probability.

b - The analyte was spiked at a level that was less than five times that present in the sample. Matrix spike recoveries may not be meaningful.

ca - The calibration results for this range fell outside of acceptance criteria. The value reported is an estimate.

c - The presence of the analyte indicated may be due to carryover from previous sample injections.

d - The sample was diluted. Detection limits may be raised due to dilution.

ds - The sample was diluted. Detection limits are raised due to dilution and surrogate recoveries may not be meaningful.

dv - Insufficient sample was available to achieve normal reporting limits and limits are raised accordingly.

fb - Analyte present in the blank and the sample.

fc – The compound is a common laboratory and field contaminant.

hr - The sample and duplicate were reextracted and reanalyzed. RPD results were still outside of control limits. The variability is attributed to sample inhomogeneity.

ht - Analysis performed outside the method or client-specified holding time requirement.

ip - Recovery fell outside of normal control limits. Compounds in the sample matrix interfered with the quantitation of the analyte.

j – The result is below normal reporting limits. The value reported is an estimate.

J - The internal standard associated with the analyte is out of control limits. The reported concentration is an estimate.

jl - The analyte result in the laboratory control sample is out of control limits. The reported concentration should be considered an estimate.

jr - The rpd result in laboratory control sample associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

js - The surrogate associated with the analyte is out of control limits. The reported concentration should be considered an estimate.

lc - The presence of the compound indicated is likely due to laboratory contamination.

L - The reported concentration was generated from a library search.

nm - The analyte was not detected in one or more of the duplicate analyses. Therefore, calculation of the RPD is not applicable.

pc – The sample was received in a container not approved by the method. The value reported should be considered an estimate.

pr – The sample was received with incorrect preservation. The value reported should be considered an estimate.

ve - Estimated concentration calculated for an analyte response above the valid instrument calibration range. A dilution is required to obtain an accurate quantification of the analyte.

vo - The value reported fell outside the control limits established for this analyte.

x - The sample chromatographic pattern does not resemble the fuel standard used for quantitation.

006109

SAMPLE CHAIN OF CUSTODY

KO 06109/10

AI 4.

Send Report To: Gerry Thompson
Company: Alaskan Copper Works
Address: 628 South Hanford
City, State, ZIP: Seattle, WA 98134
Phone #: 382-8379 Fax #: 382-4309

SAMPLERS (signature):

PROJECT NAME/NO.: Down Spout Test
PO #: M05604

REMARKS: Cell Phone 206-571-6033

Page # _____ of _____

TURNAROUND TIME
- X Standard (2 Weeks)
- ☐ RUSH _____
- Rush charges authorized by: _____

SAMPLE DISPOSAL
- X Dispose after 30 days
- ☐ Return samples
- ☐ Will call with instructions

Sample ID	Lab ID	Date Sampled	Time Sampled	Sample Type	# of containers	ANALYSES REQUESTED: Total Cr, Cu, Ni, Zn by 6010	Oil and Grease by 1664 (no silica)	Hardness by SM2340B	Total Lead by 6020	Total Cu, Zn by 6010	pH by 9040A	Turbidity by SM241A					Notes
M-05604 "AA"	01	6/9/10	11:15	H2O	1					X							
M-05604 "BB"	02	6/9/10	11:15	H2O	1					X							
M-05604 "C"	03	6/9/10	11:15	H2O	1					X							
M-05604 "CC"	04	6/9/10	11:15	H2O	1					X							
M-05604 "D"	05	6/9/10	11:15	H2O	1					X							
M-05604 "DD"	06	6/9/10	11:15	H2O	1					X							

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Seattle, WA 98119-2029
Ph. (206) 285-8282
Fax (206) 283-5044

	SIGNATURE	PRINT NAME	COMPANY	DATE	TIME
Relinquished by:		Geneva Thompson	AKW	6/9/10	1:15pm
Received by:		Nhan Phan	FEBI	6/9/10	1:15pm
Relinquished by:					
Received by:			Samples received at 20 °C		

AKC-0022345

FRIEDMAN & BRUYA, INC.

ENVIRONMENTAL CHEMISTS

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Seattle, WA 98119-2029
TEL: (206) 285-8282
FAX: (206) 283-5044
e-mail: fbi@isomedia.com

June 22, 2010

Gerry Thompson, Project Manager
Alaskan Copper Works
628 South Hanford
Seattle, WA 98134

Dear Mr. Thompson:

Included are the results from the testing of material submitted on June 9, 2010 from the Down Spout Test, PO M05604, F&BI 006109 project. There are 9 pages included in this report. Any samples that may remain are currently scheduled for disposal in 30 days. If you would like us to return your samples or arrange for long term storage at our offices, please contact us as soon as possible.

We appreciate this opportunity to be of service to you and hope you will call if you have any questions.

Sincerely,

FRIEDMAN & BRUYA, INC.

Kortland Orr
Project Manager

Enclosures
ACU0622R.DOC